# Surviving the Heat in Iraq 2007

This is where most of us would like to spend the summer

# The Primary Challenge to Working in the Heat is the **Activity**

# Risk Factors for Heat Stress

1. Ambient Temperature
2. Relative humidity.
   - High humidity can make 90° F feel like 100° F. (Heat Index)
3. Clothing & Equipment.
   - Respirators
   - Coveralls (tyvex)
   - Safety glasses (can slip down and cause accident)
4. Air movement
5. Radiant heat sources:
   - welding operations
   - turbines
6. Location of work

# Heat Index

- The heat index is a number in degrees Fahrenheit that tells how it really feels when the relative humidity is added to the actual air temperature. Exposure to full sunshine can increase the heat index by 15 degrees.

# Physical Risk Factors for Heat Stress

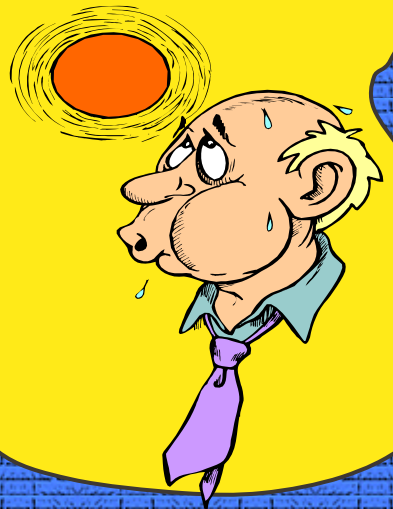
- Age
- Weight
- Fitness
- Medical Condition
- Acclimatization

# How does our body cool itself?

- First, by circulating blood to the skin which increases skin temperature, and allows the body to give off its excess heat through the skin.
- However, if the muscles are being used for physical labor, less blood is available to flow to the skin and release heat

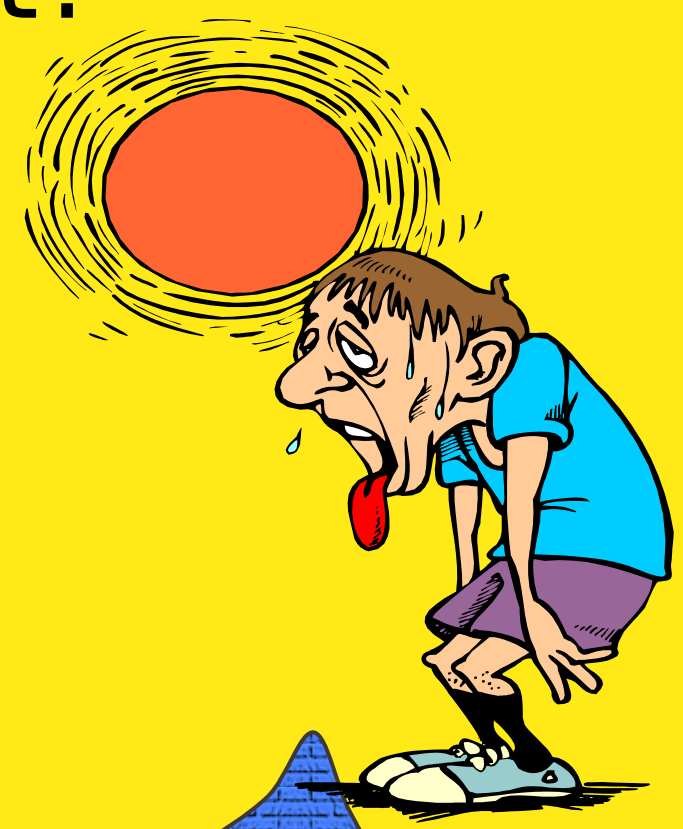
# How does our body cool itself?

Second, by **sweating**. Sweating is effective only if the humidity level is low enough to permit evaporation & if fluids & salts lost are adequately replaced. A person's ability to cool themselves through sweating ceases when the relative humidity reaches 75%.



# What happens if we can't dispose of the excess heat?

The body stores it.



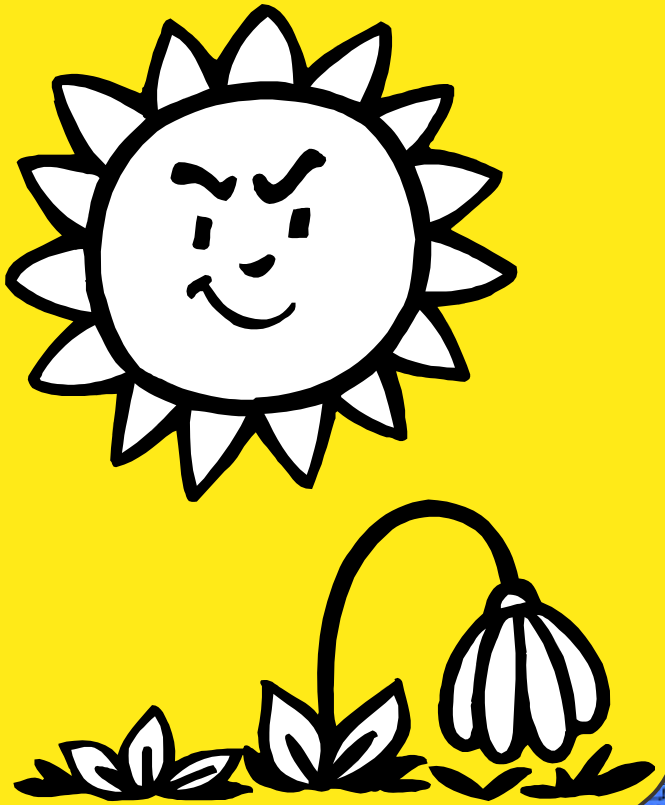
# What happens when we store heat?

- Lose concentration
- Difficulty focusing on task
- Easily irritated
- Nauseated
- Lose the desire to drink

# When the heat builds up,

Finally, the person faints & may die if they are not removed from the heat source, cooled, and given proper treatment.

# Heat Stress Disorders



# Heat Cramps

- Heat cramps are muscle spasms in the abdomen & limbs
- Due to a loss of salt by the muscles. The person is drinking water, only, without replacing electrolytes.
- Occurs during strenuous exercise

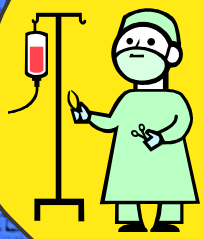
# Treatment for heat cramps

1. Rest in a cool area to reduce sweating
2. Drink electrolyte replacement beverages
3. Apply warm moist heat to the affected muscles to reduce pain.

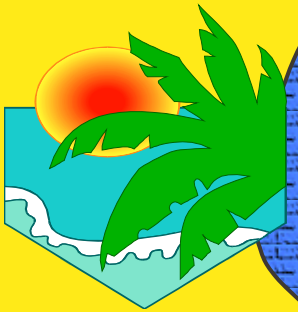
# Heat Exhaustion

- Due to over exertion & loss of fluid in hot weather.  Can occur in acclimatized workers.

- Symptoms:
  - Profuse sweating
  - Headaches
  - Dizziness
  - Confusion
  - Pale clammy skin
  - Weakness
  - Nausea



# Treatment for Heat Exhaustion

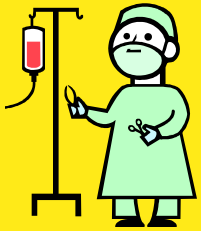


1. Get worker into shade or cooler place
2. Immediately remove any protective clothing
3. Encourage worker to drink plenty of fluids
4. Make worker lie down with feet raised
5. Fan & cool worker with wet compresses

# Heat Stroke

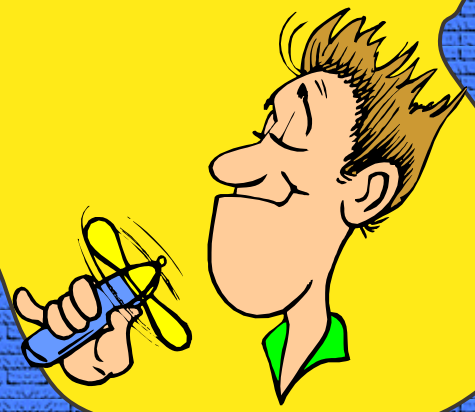
- The body's temperature control system, which causes sweating stops functioning properly.

- Symptoms:
  - Flushed, **hot dry skin**
  - High body core temperature (above 105 F)
  - Dizziness
  - Nausea
  - Headache
  - Rapid Pulse
  - Unconsciousness

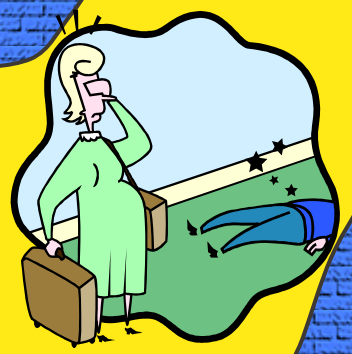


# Treatment for Heat Stroke

1. Call 112 ASAP. This is a medical emergency.
2. Take the worker to a cool location
3. Cool them by any means possible: water hose, ice packs, rub with alcohol
4. Place ice packs over body areas with major arteries
5. Cool worker until their core temperature is down to 102 F
6. Stop cooling and observe for 10 minutes
7. Once their temperature is controlled at a lower level, dry the person & use fans or air conditioning to keep them cool
8. Transfer worker to hospital
9. Do Not Give Stimulants



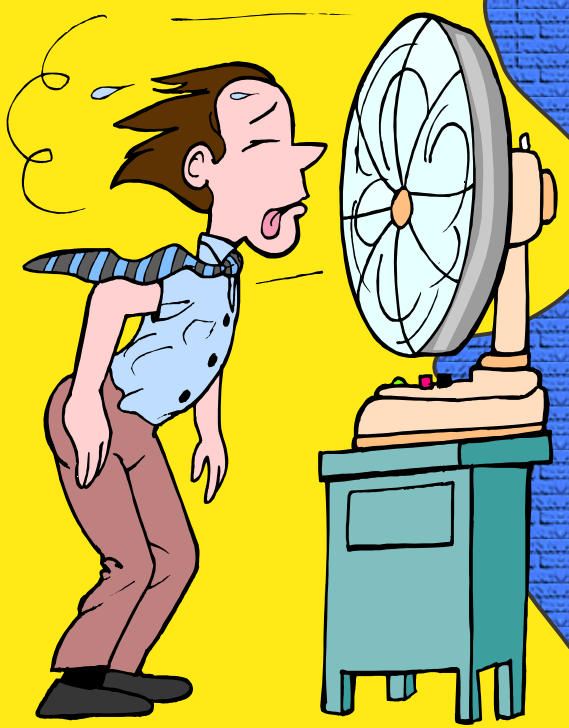
# Fainting (Heat Syncope)



- The problem is with unacclimatized workers who simply stand still
- Treatment: Let the victim lie down in a cool place. They usually recover quickly.
- Prevention: The worker should move around rather than standing still.

# Heat Rash (Prickly Heat)

- Can occur in hot humid environments when the sweat is not easily removed by evaporation
- This is a special problem for workers  that wear protective clothing. This state has a very high humidity level.
- Causes severe discomfort, & prevents sleep.
- Prevented by resting in a cool place, an allowing the skin to dry.

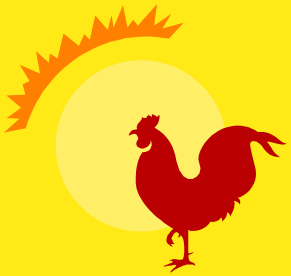


# Surviving the Heat

## Heat Stress Prevention

Heat Stress Prevention

SLOW DOWN. Avoid strenuous activity. If you must do strenuous work, do it during the coolest part of the day. This is between 4 AM & 7 AM.

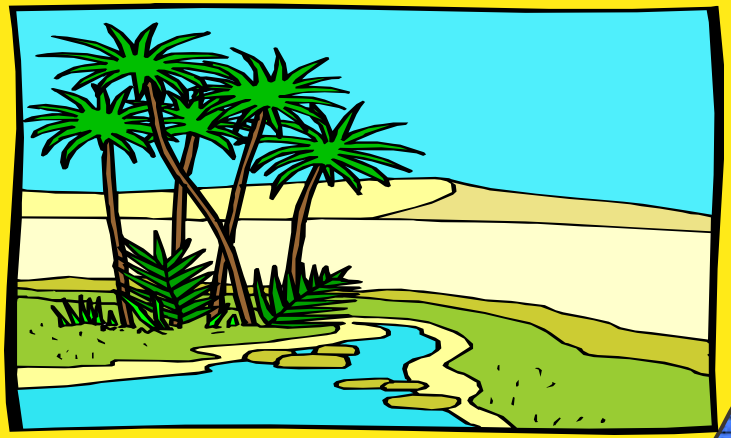


## Heat Stress Prevention

- Learn the signs & symptoms of heat-induced illnesses and what to do to help the worker.
- Train the workforce about heat-induced illnesses.

## Heat Stress Prevention

- Slowly build up your tolerance to the heat and the work activity ( may take over 2 weeks)
- Take frequent breaks in cool shaded areas, thus allowing the body to cool down.



## Heat Stress Prevention

- Use the buddy system. Work in pairs. Take turns with other workers, so some can rest.
- Drink plenty of cool water and electrolyte replacement drinks, at least 5 to 7 ounces every 15 minutes, even when you don’t feel thirsty.

## Heat Stress Prevention

- Wear light loose-fitting, breathable clothing
- Avoid eating large meals before working in hot environments.
- Avoid caffeine and alcoholic beverages. These make you lose water.

## Heat Stress Prevention

Workers wearing respirators or protective suits are at an increased risk of heat stress illness. They should take even more rest breaks, and drink more fluids.  Protective suits often do not allow air transmission, thus the body cannot cool itself through sweati

# Plan and Think Safety

Thank you for browsing through the slides

Gulf Region Division Safety